Final Report

EASTERN ARKANSAS ALTERNATIVE CROP PRODUCTION, MARKETING, & REGULATORY COMPLIANCE TRAINING AND DEMONSTRATION Project

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Work Plan & Results:

The goal of this project was to assist Limited Resource farmers in the Eastern Arkansas Delta to remain economically viable. This was done by providing production, processing, marketing and regulatory compliance technical assistance on alternative crops such as squash, sweet potatoes, southern peas, okra, greens and sweet sorghum. The specific goals focused on research and demonstrations for selected crops, market development, value-added processing and technology transfer.

Results from this project will be presented in accordance with the approved work plan that was contained in the proposal. The action steps with accompanying results follows.

1. **A working committee of UAPB faculty, Small Farm Outreach Staff and local farmer representatives will be formed to establish objectives and a plan of work.**

   The initial plan was to establish a committee but time constraints and schedules did not permit the establishment of the committee prior to the 2001 growing season. In lieu of a committee, several meetings were held with farmers. These meetings included UAPB faculty, Small Farm Outreach staff, farmers, Cooperative Extension Service members, and USDA employees.

2. **A survey of local limited resource farmers in the area will be conducted. Information will be sought on previous alternative crop experience, past marketing attempts, problems that the growers have experienced and greatest perceived needs.**

   During the meetings mentioned in Item #1, farmers were asked about their previous experience in growing alternative crops. Most of the farmers said they had grown greens, okra and sweet potatoes, however, some had not grown these crops on a commercial scale. Farmers from the Lee County CO-OP had grown squash on a commercial scale and were marketing through the Wal-Mart store chain. Farmers indicated:

   (1) They needed additional market outlets for their produce.

   (2) They needed access to capital for operation and marketing.

   (3) Another perceived need was freedom from discrimination, i.e. farmers thought they were being treated unfairly by USDA agencies; especially the Farm Service Agency.

   (4) Some farmers thought they needed help with variety selection and production information. They wanted the University of Arkansas at Pine Bluff (UAPB) to

establish research/demonstration plots in their communities.
(5) Infrastructure for value-added processing is needed to make marketing a reality (especially storage and curing for sweet potatoes).

3. **Announcements of the local outreach research & demonstration center will be circulated. Format will include flyers, radio and newspaper public announcements and small group meetings.**

Information on the local outreach and demonstration efforts by UAPB was well received by residents in Eastern Arkansas. Group meetings were the main avenue for dissemination. These meetings included planning meetings, field days and presentations at the public meeting of the East Arkansas Enterprise Community (EAEC). Also, the university placed a booth at the EAEC meeting. The state-wide newspaper, Athe Arkansas Democrat Gazette@ published an article about programs in the Arkansas Delta on May 21 ,2001 and said UAPB had partnered with the Delta Community Development Corporation Ato plan a vegetable processing facility in which small farmers could package and sell their crops@ at the Ag Park.

4. **Results of the survey will be tabulated and analyzed to determine the most effective strategies to realize the project=s goals.**

A formal survey was not conducted due to the usually low response rates that have been offered over the years. However, information obtained during group meetings referenced in item #2 served as the basis for formulating strategies to accomplish the stated goal. Farmer participation was solicited during each phase of the project.

5. **Decisions as to demonstration and research topics at the Center will be made and implemented: Crop Selection and Production Factors relevant to the Delta.**

Crop selections were made on the basis of what is normally grown in the area and what has a good market potential. The research and demonstration activities focused on variety selection and management practices for greens, southern peas, sweet potatoes and sweet sorghum. These crops have good market potential. For example, Glory Foods indicated that they would buy the greens and sweet potatoes grown in the area. Southern peas have good market potential with farmers saying they cannot grow enough for the local fresh market. Southern peas sell well at roadside stands and at farmers markets in the area. Sweet sorghum has more of a nostalgic flair and the syrup that is made from it is sold to the older generation. It sells well around fairs and Blues-Fest activities.

6. **Outreach Technician employed. Duties include: Maintain field conditions and research at Center, conduct research on marketing and communicate with local farmers.**

The Outreach Technician was employed early in the process. With the funds available, a part-time Project Director (PD) who lives in the area and a farm worker were hired. The Project Director looked for marketing opportunities and maintained community relations while the farm worker maintained field conditions at the research site. Additional assistance was provided by the Associate Dean of Outreach and Technology Transfer (ADOTT) for the School of Agriculture, Fisheries and Human Sciences (SAFHS) at UAPB. Also, the faculty and staff from SAFHS provided research expertise and additional field labor for the project at no cost to the grant.

7. Present marketing strategies reviewed and analyzed.

Farmers in the area produced squash, okra, sweet potatoes and greens for sale. The vegetable processing line and the bar coding equipment (purchased with other funds) allowed farmers to process okra and squash to industry standards. The produce was sold to J.W. Holding group for the Wal-Mart outlet. Sweet potatoes and greens were marketed through AGlory Foods@. Also, some produce was sold locally at fruit stands and to interested individuals.

Efforts are underway to help farmers in the area form a marketing group. The farmers of Lee, St. Francis and Phillips counties have formed a marketing group. The group signed a memorandum of agreement that allows them to work together. They plan to use the AMarianna Ag Park@ which is centrally located and it has space for processing and storing vegetables.

8. **Potential markets studied: Trips to nearby metropolitan areas (St. Louis, Memphis, Chicago)**

The UAPB faculty, staff and administrators worked collaboratively with employees of ALFDC, the Natural Resources Conservation Service (NRCS) and the Cooperative Extension Service (CES) to find additional market outlets for the farmers. Glory Foods is one marketing outlet that has shown some promise for purchasing produce from Eastern Arkansas. The Lee County Vegetable CO-OP and St. Francis County Vegetable CO-OP are currently marketing through the Wal-Mart store chain. The ADOTT and PD attended a meeting with the two (2) CO-OP=s, a Wal-Mart representative and representatives of J.W. Holding Company during December of 2000. Judging by the discussions that were held, farmers will have an opportunity to market the crops that they grow.

During January 2001, two farmers and the Horticulturalist for the Cooperative

Extension Program (COP) participated in the Sustainable Agriculture Research and Extension (SARE) Conference and the Sustainable Agriculture Working Group (SAWG) workshop in Chattanooga, Tennessee. This workshop allowed the participants to gain insight into the implementation of the National Organics standards. It also provided an opportunity to network with similar individuals and groups. Another significant event that occurred during January of 2001 was the signing of Executive order EO 01-01 by Governor Huckabee of Arkansas (Copy attached - Exhibit 1) of vegetables purchased by state agencies should come from local small farms.

The month of February 2001 provided several opportunities to network with farmers, community leaders and the private sectors (Kellogg Foundation and Glory Foods) that have an interest in agriculture. Invariable the discussion turned to marketing. Many farmers said they have no problem growing the crops. The main problem that they are having is marketing. In the meeting with the Kellogg Foundation, farmers from Arkansas, Louisiana and Mississippi were present. The groups discussed avenues that small and limited resource farmers may be able to more effectively utilize the resources of the USDA, and private industry to move their product to market. Discussions also included marketing techniques for direct sales to consumers. The Glory Foods meeting was held at ALFDC and it provided an opportunity for farmers to engage the company representative in a one-on-one conversation. This was the preliminary meeting and discussion concerned marketing potential for vegetables.

Three (3) farmers were sponsored by Glory Foods as they attended the ADirect@ International Marketing and Trade Show at Tampa, Florida during March 2001. The ADOTT and the director of the 2501 Small Farm Project also attended the conference. The participants were exposed to some of the latest techniques used by the vegetable and fruit industry. These included product safety, greenhouse production of vegetables and discussions on product liability. The trade shows highlighted some of the latest technology in packaging, storage and tracking produce as it leaves the farm and enter the food chain.

9. **Economic of marketing evaluated: processing and transportation**

An assessment of the feasibility for marketing Arkansas Delta Produce was made by an independent consultant by using funds from another source. The study revealed that 175 acres of sweet potatoes, 120 acres of fall greens, 20 acres of Bell Peppers, 120 acres of summer squash, 70 acres of okra, and 20 acres of egg plant to make the venture a success. Also, it was determined that substantially more capital ($830,000) would be needed during the first year to make the venture a success. This is well beyond the scope of this project and it led us to the realization that additional capital would be needed to successfully implement the plan that was developed. While $830,000 seemed like a lot of money to the small farmers, it pails in comparison to the $14 million that was invested in a tomato processing facility in Southeastern Arkansas. Additional grants and other

sources of capital have been sought, however, the total that has been received is not close to $830,000.

10. **Potential of processing at Center studied: Value-added steps investigated**

The School of Agriculture, Fisheries and Human Sciences (SAFHS), the Economic Development Fund Commission of Arkansas, and the East Arkansas Enterprise Community (EAEC) have invested a substantial amount of money and human capital into developing a vegetable processing facility in Marianna. The AAg Park@ which is owned by Delta Community Development Corporation (DCDC) was leased by Lee County Vegetable Cooperative and is now needed by the newly formed group.

A comprehensive plan has been developed and submitted to EAEC for the fulfillment of Benchmark #9 AProvide technical support for Agriculture related new and existing small businesses@. The university is now implementing the plan, which includes establishing the vegetable processing facility. Additional equipment will be purchased and infrastructure will be put into place to implement the plan. Furthermore, a memorandum of agreement has been signed by Lee County, Phillips County and St. Francis CO-Op=s to market produce under the same umbrella organization.

11. Research and recommendations on production factors: Pest Management; Precision Farming, water and fertilizer requirements and variety selection

In keeping with the findings from item #2, UAPB conducts research and demonstrations on a farm site in Marianna, Arkansas. UAPB faculty and staff conducted research and demonstrations on sweet potatoes and southern peas. Also cane sorghum was grown in conjunction with Alcorn State University of Lorman, Mississippi. In response to timely rainfall and milder temperatures, yields were substantially higher in 2001 that they were in 2000. Twelve varieties of southern peas were grown. The highest yielding variety was Agolden creamy@ and the lowest yielder was an experimental line from Arkansas. Market acceptability may be a problem for the Agolden creamy@ variety because it is not a purple hull variety and consumers in the area appear to prefer the purple hull varieties. Nine varieties of sweet potatoes were tested at the Marianna site. An experimental variety produced the highest yield of U.S. #1 potatoes. It was followed closely by Beauregard and O=henry - a variety that was being tested for the first time in this area. O=henry has white flesh and preliminary results show that it may have market acceptability, however, more testing is needed.

In addition to the southern pea, sweet potato and cane sorghum trials that were conducted in 2001, faculty and staff grew squash and bell peppers in 2002. The demonstration with bell peppers was a part of a regional study that is supported

by the ASouthern Agbiotech Consortium for Underserved Communities= grant that was obtained by eleven (11) of the 1890 Land Grant Universities.

12. Training and Demonstration Sessions: Topics selected by local growers

The CENTER continued technical assistance in the east-central portion of the state in training and re-training the workforce in vegetable production as well as grading and marketing techniques to farmers and small businessmen. The UAPB staff collaborated with other educational institutions and area organizations to provide farmers and small businessmen with the best expertise possible in various fields of interest.

On February 26, 2002, the CENTER staff participated with the Cooperative Extension Service University of University Arkansas Division of Agriculture and Arkansas State University with an area wide meeting to provide farmers with the most recent and available technology in horticulture. This all day ATechnical Assistance Fair@ demonstrated horticulture technology and education on the following topics:

1. Vegetable insect control
2. Services provided by the CENTER
3. Marketing of produce
4. Sweet potato production, Gap and selecting vegetable cucurbits
5. Southern Pea Varieties
6. Weed Control
7. Irrigation
8. Farm Service Agency Programs
9. Value added products from vegetables
10. Vegetable marketing and record keeping

UAPB staff participated in a APesticide Applicator@ training session on March 5, 2002 at the University of Arkansas Cotton Branch Station. UAPB is designated by the U.S. Food Safety Inspection Service to serve as the Arkansas Institutional Sponsor for the Small Plant Demonstration Project. UAPB-Professors provide training in vegetable handling for the Hazard Analysis Critical Control Program (HAACP). In addition, UAPB is the State of Arkansas repository for HAACP training materials. As a result of this designation, UAPB participated with Arkansas State University (May 15, 2002) in a Fresh Produce Food Safety Training Workshop. The following activities were discussed:

1. Introduction to Fresh Produce Food Safety
2. USDA Guidelines for Good Agriculture Practices
3. Food Safety Hazards Associated with Fresh Produce
4. Personal Health and Hygiene

5. Water Quality: Agriculture and Processing Water
6. Field and Packing and Transportation Sanitation
7. The Safety of Fruits and Vegetables
8. Assessing Blame or Self Protection

Area farmers and such small businesses and/or operators as well as vegetable-processing producers attended this meeting.

13. **Recommendations on marketing potential presented**

Successful marketing is the lynchpin to any successful business operation. The marketing of vegetables grown in this project will determine the ultimate success or failure of this venture. Marketing of fresh vegetables is usually more risky than marketing of traditional row crops. One of the chief reasons for this is the commodity is a dying product with a short shelf life. In addition, the prices for vegetables are often volatile. Therefore, UAPB does not recommend that farmers quit the production of row crops altogether. Rather, the strategy is to recommend that farmers add vegetables as an alternative enterprise which will diversity their risk and enhance the potential for farm profitability. The feasibility study showed that the area has potential as a vegetable producing and marketing area. The study showed the risk. This risk is substantially mitigated by the co-op=s development of a diverse crop base involving six separate vegetables. Price risk is also mitigated by the co-op=s marketing emphasis on seasonal and longer term contracts with multiple retail and wholesale channels. This marketing strategy, along with the co-op=s investment in sweet potato storage capacity, should largely reduce the risk of substantially depressed prices for a sustained period.

Bell pepper and egg plants provide considerable up side potential for growth as the co-op=s two smallest crops. With initial commercial production in the 2001 growing season, these crops also have two of the higher gross margins and per acre contributions to operating costs and profit. The gross margin and contribution for each of the six crops is shown in the table below.

Gross Margin and Per Acre Contribution to Operations and Profit		
	Gross Margin (%)	Per Acre Contribution ($)

	4.9	153
	9.4	319
	14.5	1323
	10.1	304
	19.6	684
	13.1	1024

14. Recommendations of processing potentials presented

Light processing of vegetables has become a necessity. Consumers at roadside stands and farmers markets prefer produce that require a small amount of time for preparation after they take it home. Likewise, retailers of produce such as Wal-Mart, Glory Foods, C.H. Robinson, etc. are requiring that vegetables be placed in pre-packaged containers such as clam shells and RPC-s.

This project was not designed to get into heavy processing and/or canning operations. Rather, it was designed to look at light processing and safe handling of vegetables. This will ensure a more wholesome product for the consumer and a better price for the farmer.

In addition to fresh markets, the ultimate goal is to enhance sales through adding **VALUE-ADDED** components. Many buyers look for value-added products instead of fresh produce. A storage and curing facility for sweet potatoes will allow farmers to deal with the law of supply and demand. They will be able to hold produce when the supply is high and sell for higher prices when the supply is low.

Program Outcomes

1. A research and demonstration program has been put in place at the AAg Park@ in Marianna, Arkansas (See Goal # 11).

2. Outreach personnel from UAPB and other universities, non-governmental agencies (NGO=s) and Natural Resources Conservation Service (NRCS) employees are working with the farmers as indicated under goal(s) 6 and 11.

3. Appropriate technology transfer and demonstrations were offered as shown under goal # 8 and # 12.

4. Farmers were given HAACP training as initiated in response to goal # 12.

   During the 2002 growing season, farmers and researchers continued their work. Researchers continued variety trials with southern peas, sweet potatoes and cane sorghum. Also, a California wonder sweet pepper demonstration (the use of AMessenger@ a biochemical pesticide that controls bacterial leaf spot *xanthomonas campestris pv. vesicatoria* as conducted. Farmers grew less vegetables (50,000 lbs greens, 135,000 lbs squash, 7,000 lbs okra and 250,000 lbs sweet potatoes) than they did during the 2001 growing season. This was partly due to the high cost of production, a lack of adequate storage for sweet potatoes and a depressed market.

   Although this project had ended, the university fully intends to continue working with the farmers in the area. UAPB=s hope is to improve the production sustainability of the farms by improving production practices, record keeping, marketing and value-added processing activities.

5. Several grant applications have been made and three (3) were funded for a total of $372,000. However, the total is not close to the $850,000 that was estimated to be needed according to the Feasibility Study referenced in goal # 9.

Economic Outcomes

The economic outcome of creating an additional 25-30 full-time jobs with an annual payroll of $350,000 was not realized. Limited resource farmers were and are not immune to the ills that affect farmers in general. If anything, they are more affected; because, they do not have the buffer of commodity price supports as other farmers do, i.e. vegetable crops are not a part of the USDA price support system.